



Course Specifications

Course Title:	Fruits and Vegetables Industry Technology
Course Code:	2064104-3
Program:	Bachelor in Food Science and Nutrition
Department:	Food Sciences and Nutrition Department
College:	College of Science
Institution:	Taif University

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A. Course Identification:

1. Credit hours: 3 Hours
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 10 th Level / 4 nd year
4. Pre-requisites for this course (if any): Fundamentals of Food Processing (2062102-3)
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	5	100%
2	Blended	--	--
3	E-learning	--	--
4	Correspondence	--	--
5	Other (Practical)	--	--

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	20
3	Tutorial	---
4	Others (specify)	---
	Total	50

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed to deliver the knowledge and different skills about fruits and vegetables processing technology, properties, classification, nutrition, postharvest, industrial methods, preservation methods, manufacture of some vegetable and fruit products, deterioration factors, Safety.

2. Course Main Objective

- The general properties of vegetables and fruits.
- Postharvest handling and storage technology of fruits and vegetables.
- Methods used in fruits and vegetables processing.
- Preparation some fruits and vegetables products.
- Effect of the deterioration factors on the vegetables and fruits.
- Safety system in fruits and vegetables industries.

3. Course Learning Outcomes:

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	Recognize fruit and vegetable characteristics and safety.	K 4
1.2	Describe the different processing technology methods used in fruits and vegetables field	K 3
1.3	List the fruits and vegetables deterioration and preservation mechanisms.	K 4
1.4	Reproduce some fruit and vegetable products.	K 3

CLOs		Aligned PLOs
2	Skills:	
2.1	Evaluate the composition and properties of fruit and vegetable and their products.	S1
2.2	Compare between the fruit and vegetable industrial methods.	S4
2.3	Prepare some fruit and vegetable products	S1
3	Values:	
3.1	Show responsibility, respect and scientific ethics towards relationships during the work	V1
3.2	Use the information technology in preparation of reports	V2

C. Course Content:

No	List of Topics	Contact Hours
1	General properties of fruits and vegetables Classification and physiology of fruits and vegetables-Composition of fruits and vegetables-Nutritional profile of fruits and vegetables-Bioactive phytochemicals in fruits and vegetables-Flavor and Sensory Characteristics of fruits and vegetables)	6
2	Postharvest Handling and Storage Technology and deterioration (Postharvest Physiology-Physical Factors, storage and transportation)	3
3	Processing of fruits and vegetables -Preparation of vegetable and fruits for processing -Refrigeration and freezing – Drying- Canning of vegetable- Novel processing Technologies	12
4	Processed Fruit and Vegetable Products Jams and Jellies - Fruits and vegetable juices - Potatoes and Tomato-Fruit Beverages and concentrates - Production and Processing of Date Fruits.	6
5	Product and Food Plant Safety (Controlling food safety hazards in the vegetable industry—The HACCP-Good agricultural practices and good manufacturing practices	3
Total		30
Practical Topics		
1	Classification of vegetables and fruits	2
2	Physico-chemical characteristics of vegetables and fruits	2
3	Preparation of vegetables and fruits for different industrial methods	2
4	Refrigeration and freezing of vegetables and fruits and evaluation of their quality	2
5	Drying of vegetables and fruits and evaluation their quality	2
6	Preparation jams, jelly	2
7	Preparation of juices	2
8	Preparation of pickling	2
9	Canning of vegetables and fruits	2
10	Good agriculture practice	2
Total		20

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Recognize fruit and vegetable characteristics and safety. <small>[1] [2] [SEP]</small>	Lecturer - Practical.	Written and practical exams

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Describe the different processing technology methods used in fruits and vegetables field	Lecturer scientific visits	Written exams - reports
1.3	List the fruits and vegetables deterioration and preservation mechanisms	Lecturer – Practical.	Written and practical exams
1.4	Reproduce some fruit and vegetable products.	Lecturer – Practical.	Written and practical exams
2	Skills:		
2.1	Evaluate the composition and properties of fruit and vegetable and their products.	Practical	Written exam Report evaluation
2.2	Compare between the fruit and vegetable industrial methods.	Lecture - Plant visit - practical	Written exam Practical exam
2.3	Prepare some fruit and vegetable products	Practical demonstrations	Practical exam
3	Values:		
3.1	Show responsibility, respect and scientific ethics towards relationships during the work	Work in small groups	Report evaluation
3.2	Use the information technology in preparation of reports	practical	Group Presentation

2. Assessment Tasks for Students:

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignment and Interaction during lectures	Continues	10%
2	Midterm exam	5-6	20%
3	Weekly Lab. Reports	Continues	20%
4	Practical exam	11	10%
5	Final exam	12	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- There are 6 h per week for this purpose and the students know these hours according to the time of professor who teach the course.
- Student satisfaction surveys are conducted for academic guidance.
- Develop an improvement plan for academic guidance based on the results of the questionnaire analysis.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> - Sinha N.K. (2011). Handbook of Vegetables and Vegetable Processing. Blackwell Publishing Ltd. 2121 State Avenue, Ames, Iowa 50014-8300, USA. - https://onlinelibrary-wiley-com.sdl.idm.oclc.org/doi/book/10.1002/9780470958346 - Sinha N.K., Sidhu J.S., Barta J., Wu J.S.B. and Pilar Cano M. (2012). Handbook of Fruits and Fruit Processing, 2nd ED, John Wiley & Sons, Ltd., 2121 State Avenue, Ames, Iowa 50014-8300, USA. - https://onlinelibrary-wiley-com.sdl.idm.oclc.org/doi/book/10.1002/9781118352533
Essential References Materials	<ul style="list-style-type: none"> - Hui Y. H. (2006). Handbook of Fruits and Fruit Processing. Blackwell Publishing Professional 2121 State Avenue, Ames, Iowa 50014, USA.
Electronic Materials	<ul style="list-style-type: none"> - Wikipedia - ScienceDirect - Springer. - Wiley

	- PubMed
Other Learning Materials	- Information technology

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	- Classroom (capacity not more than 40 students) for 3 h/week. - Laboratory (capacity not more than 20 students) for 3 h/week
Technology Resources (AV, data show, Smart Board, software, etc.)	- Data Show projectors, smart blackboard. - Computer - PowerPoint presentations.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	- Chemical - preservatives, Kitchen machine, Thermometers, Freezers, Refrigerators, gas cookers and all other equipment to be used in laboratory food preservation.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students, faculty, program leaders and Peer Reviewer	<ul style="list-style-type: none"> • Continuous monitoring by directors of program and quality assurance unit (Direct). • Applying Questionnaires received from the Deanship of Academic Development for Student evaluation (indirect). • Evaluation of course report (indirect).
Extent of achievement of course learning outcomes	Students, faculty, program leaders and Peer Reviewer	<ul style="list-style-type: none"> • Applying Questionnaires for Student evaluation (indirect). • Evaluation of course report (indirect).
Quality of learning resources	Faculty, program leaders, administrative staff, independent reviewers.	<ul style="list-style-type: none"> • Continuous monitoring by directors of program and quality assurance unit (Direct). • Applying Questionnaires for Student evaluation (indirect). • Evaluation of course report (indirect).

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data:

Council / Committee	Department council - Academic Development Committee	
Reference No.	Department council NO: 5	Subject NO: 2
Date	08 /07 /1444 H	